Saginary Water Quality Report Region

Birch Run Township

Village of Birch Run

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Blumfield Reese Water Authority Bridgeport Charter Township Buena Vista Charter Township Carrollton Township Frankenlust Township James Township Kochville Township Saginaw Charter Township City of Saginaw Village of St. Charles Spaulding Township Swan Creek Township Taymouth Township Thomas Township Tittabawassee Township City of Zilwaukee

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Your community is providing you with this report to help you learn more about the quality of the drinking water that comes out of your tap.

This report has been assembled by the professionals who work to provide a safe and reliable supply of drinking water for all consumers in the Saginaw region, including:

- Albee Township
 - Birch Run Township
 - Village of Birch Run
 - Blumfield-Reese Water Authority
- Bridgeport Charter Township
- Buena Vista Charter Township
- Carrollton Township
- Frankenlust Township
- James Township
- Kochville Township

- Saginaw Charter Township
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- Village of St. Charles
- Spaulding Township
- Swan Creek Township
- Taymouth Township
- Thomas Township
- Tittabawassee Township
- City of Zilwaukee

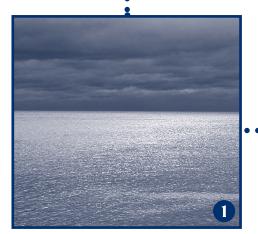
Customers of Saginaw's Regional Water System enjoy high quality source water from Lake Huron, which is reliably treated and distributed. Please take a moment to read this important report! *El informe contiene informacion importate sobre la calidad del agua en su comunidad. Traduzcalo o hable con alguien que lo entienda bien.*

Water Supply Your drinking water comes from Lake Huron, one of the largest and highest quality sources of fresh water in the world.

Water Treatment Highly trained, certified staff work in the laboratories at the Saginaw Water Treatment Plant. These qualified staff members perform hundreds of tests every day. Water samples are taken daily from the plant at each step in the treatment process to ensure high-quality drinking water. Samples are also obtained weekly from various locations throughout the distribution system. Water samples are subjected to a battery of chemical and microbiological tests, such as pH, alkalinity, color, chloride, iron, coliform bacteria, metals, and volatile organics. Many of these tests are required by law, but the Saginaw Water Treatment Plant also performs additional tests to provide greater water quality assurance. **Close to 100,000 analyses are performed on your drinking water each year!**

Plant Operations staff work around the clock to ensure that the water you drink meets or surpasses all federal and state standards for quality and safety. Operations and maintenance staff maintain the equipment, which allows the plant to perform more efficiently and reliably. Routine maintenance also prolongs the life of our equipment, which helps to keep your water rates as low as possible. These workers provide fresh tap water to nearly 175,000 people in the Saginaw region every day.

Water Distribution Each community that obtains its drinking water from the Saginaw Water Treatment Plant is responsible for maintaining its own distribution system. This includes repairing water main breaks, collecting certain water samples, and routinely flushing water mains to keep them clean. You can learn more about your community's water system by attending regularly scheduled meetings. See the back of this report for more information about meeting times.







Maintenance and repair projects extend the useful life of our water system and help keep your water rates as low as possible.







System-Wide Improvements

Water Treatment Division Projects

- a. Modified baffle and inspected valve in west settling basin.
- b. Reconstructed foyer ceiling in south filter gallery. Painted lobby and classroom.
- c. Performed extensive weed removal in Lake Linton.
- d. Performed roof and water control repairs over switchgear area.
- e. Repaired brick walls in chlorine area.
- f. Repaved courtyard.
- g. Performed masonry repairs to historic washwater tower.
- h. Rebuilt decanting pump on treatment floor.
- i. Repaired parapet walls, roof, doors at two pump stations.
- j. Removed high service (treated water) pump #8 for base repair.
- k. Removed lime deposits from the north coagulation tanks.
- l. Cleaned and inspected south bleach day tank and bulk tank. Made repairs to bulk tank.

Maintenance and Service Division Projects

- m. Replaced brass tapping saddles and replaced water service connections with K-Copper on Mackinaw St. and N. Mason St (which also included valve replacement).
- n. Replacing about 850 feet of 6-inch cast iron line with PVC, including the removal of cast iron and ductile iron crosses on N. Warren Avenue. Water service connections will be replaced with K-Copper. Work began in 2016 and will finish in 2017.
- o. Installed a flushing station on Norman Street to keep water quality within regulatory limits.

Water System Project

p. In 2018, Saginaw County will reconstruct Davis Road from Tittabawassee to Pierce in Kochville Township. Prior to that project, the City will relocate multiple miles of large-diameter, raw and finished water transmission main. Because these pipes are currently buried below the pavement, moving them prior to construction improves reliability and cost savings. Work completed in 2016 included evaluation, design, property evaluations, and easement acquisition. The total cost to relocate the aging pipes will be close to \$17 million.

Local Community Improvements

Blumfield Reese Water Authority added 69 new customers by extending water service 10 miles into in Denmark and Gilford Townships.

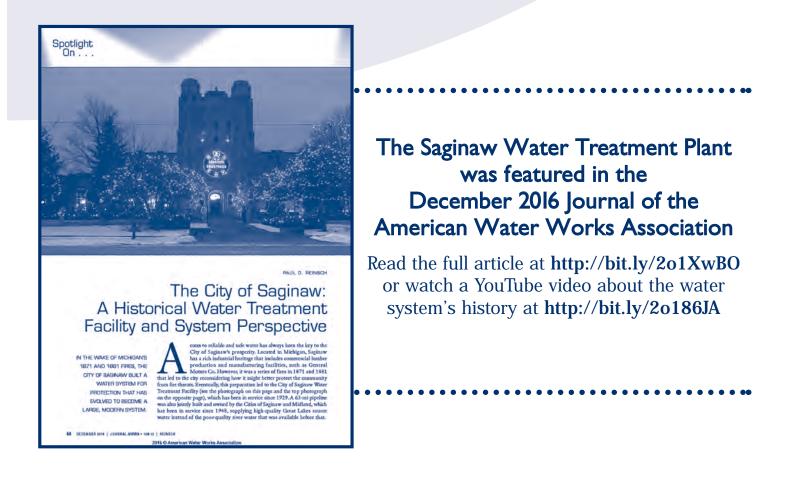
Buena Vista Charter Township installed a flushing station on the north end of Portsmouth Road to keep water quality within regulatory limits.

Regulatory Update & Future Plans

Drinking Water Regulatory News

Lead and Copper Rule: Revisions to EPA's 25-year-old Lead and Copper Rule are still being considered at the federal level. In addition, the State of Michigan is considering its own stricter version of the federal rule. To learn more about this and other drinking water regulatory issues, consider following the American Water Works Association, the largest nonprofit, scientific and educational association dedicated to managing and treating water. www.awwa.org/legislation-regulation.aspx

To remain abreast of proposed changes to state regulations and other issues surrounding lead (and copper) in drinking water, representatives from the City of Saginaw attended the "Water Infrastructure Conference: A National Conversation in Flint" in March 2017. The conference was co-sponsored by the State of Michigan Department of Environmental Quality and the City of Flint and featured a wide range of topics presented by national experts.



Contaminants Tested for in 2016 and NOT DETECTED in Saginaw's Treated Drinking Water

Cyanide; Nitrate; Nitrite; Iron; Bromoform; Bromoacetic Acid; Chloroacetic Acid; Dalapon; Benzene; Bromobenzene; Bromochloromethane; Bromomethane; n-Butylbenzene; sec-Butylbenzene; tert-Butylbenzene; Carbon tetrachloride; Chlorobenzene; Chloroethane; Chloromethane; o-Chlorotoluene; p-Chlorotoluene; Dibromomethane; 1,2-Dichlorobenzene; 1,3-Dichlorobenzene; 1,4-Dichlorobenzene; Dichlorodifluoromethane; 1,1-Dichloroethane; 1,2-Dichloroethane; 1,1- Dichloroethylene; cis-1,2 Dichloroethylene; trans-1,2 Dichloroethylene; 1,2-Dichloropropane; 1,3-Dichloropropane; 2,2-Dichloropropane; 1,1-Dichloropropene; cis-1,3 Dichloropropene; trans-1,3 Dichloropropene; Dichloromethane; Ethylbenzene; Fluorotrichloromethane; Hexachlorobutadiene; Isopropylbenzene; p-lsopropyl Toluene; Methyl ethyl ketone; Methyl isobutyl ketone; Methyl-tert-butyl ether; Naphthalene; Nitrobenzene; 1,2,3-Trichlorobenzene; 1,2,4-Trichlorobenzene; 1,1,1-Trichloroethane; 1,1,2-Tetrachloroethane; Trichloroethylene; 1,2,3-Trichloropropane; 1,2,4-Trimethylbenzene; 1,3,5-Trimethylbenzene; Vinyl Chloride; m-Xylene; o-Xylene; p-Xylene; Total Xylenes

HEALTH & SAFETY INFORMATION

Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily pose a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive materials, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife
- Inorganic contaminants, such as salts and metals, which can be naturally occurring, or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, and septic systems
- Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration's regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline, 800.426.4791.

Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those undergoing chemotherapy, who have undergone organ transplants, with HIV/AIDS or other immune system disorders, and some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

Federal guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the U.S. EPA's Safe Drinking Water Hotline at 800.426.4791.



Source Water Assessment • Your drinking water comes from Lake Huron, one of the largest and highest quality sources of fresh water in the world.

The raw water intake is near Whitestone Point, a location selected in the 1940s after an engineering study showed that water at this location was typical of deep Lake Huron currents, and relatively free from influences from Saginaw Bay and nearby on-shore sources of contamination. The raw water is purchased from the Saginaw-Midland Municipal Water Supply Corporation (jointly owned by the Cities of Saginaw and Midland), and travels 65 miles through reinforced concrete pipe to the Saginaw Water Treatment Plant for processing.

In June 2004, the Michigan Department of Environmental Quality completed its assessment of our Lake Huron raw water supply and issued a Source Water Assessment report. This assessment determined our raw water supply's susceptibility to contamination. The State used a seven-tiered susceptibility rating scale from "very low" to "very high" based primarily on geologic sensitivity, water chemistry, and contaminant sources.

The susceptibility of our raw water was rated "moderately low." Although the threat of contamination still exists, this rating is the best a surface water source can achieve. The forethought used in selecting the location of the intake helped our raw water supply achieve its "moderately low" susceptibility rating. If you would like to review a copy of the Source Water Assessment report, or have questions about it, please contact the Saginaw Water Treatment Plant at 989.759.1640.

2016 WATER QUALITY RESULTS

The table below shows the results of water quality tests in the Saginaw Water Treatment System during 2016, unless otherwise noted. The State allows us to monitor for certain contaminants less than once per year because their concentrations are not expected to change year to year. Our treatment plant remained in compliance with all of the monitoring and reporting requirements, and met or surpassed all state and federal water quality and safety standards. The table and information to the right covers the results of testing performed in each individual distribution system.

parameter	test date	unit	average	range	MRDL MRDLG violation?			likely sources					
Regulated Inorganic Parameters (sampled in the distribution system)													
Chlorine	2016	ppm	0.81	0.63 - 0.97	4	4	no	Water additive used to control microbials					
parameter	test date	unit	average	range	MCL	MCLG	violation?	likely sources					
Regulated Inorganic Parameters (sampled at the plant's finished water tap)													
Fluoride ¹	2016	ppm	0.79	na	4	4	no	Water additive to promote strong teeth					
Barium	2014	ppm	0.28	na	2	2	no	Erosion of natural deposits					
Regulated Micro	Regulated Microbiological Parameters (sampled in the filtered water)												
Turbidity ²	2016	ntu	0.061	0.04 - 0.19	none	TT	no	Soil runoff, suspended matter in lake water					

 The Saginaw Water Treatment Plant monitors and supplements the fluoride level in drinking water to maintain a level close to 0.8 ppm to promote dental health. This fits with EPA's secondary fluoride standard of 2 ppm to prevent dental disease in children. The level reported above is from annual regulatory sampling. Staff members also conduct daily fluoride sampling. Results in 2016 were: average=0.77 ppm; range=0.22-0.88 ppm.

2. Turbidity in systems that provide filtration, like Saginaw, must never exceed 1 NTU, and must not exceed 0.3 NTU in more than 95% of daily samples in any month to remain in compliance. 100% of our samples in 2016 achieved these requirements. This indicates that our treatment process is working effectively.

parameter test date unit avg range MCL/MCLG violation? likely sources

Unregulated Parameters (not regulated at the State or Federal Level)

Sodium [*]	2016	ppm	7	na	unregulated	na	Naturally occurring
Bromochloroacetic A	.cid 2016	ppb	2.4	nd - 4	unregulated	na	Byproduct of drinking water disinfection

* This information is provided for those concerned with sodium in their diet; 7 ppm of sodium works out to 1.66 mg of sodium per 8 ounce glass of water.

2016 Long Term 2 Enhanced Surface Water Treatment Rule (LT2) Results

The Saginaw Water Plant continued conducting monthly source water monitoring for *Cryptosporidium*, *Giardia* and *E. coli* in 2016. In 2016, *Giardia* was detected in one of our twelve monthly samples of RAW, unfiltered water (1 cyst in the 50-liter sample). *Cryptosporidium* and *E. coli* were not detected during 2016 testing. *Cryptosporidium* and *Giardia* have NEVER been detected in our treated drinking water and Saginaw's test results have been so favorable through the years that our water was placed into the lowest and best category of the LT2 Rule, allowing us to avoid costly treatment measures. *Cryptosporidium*, *Giardia*, and other microbial pathogens come from human and animal waste. They are sometimes found in untreated surface waters (lakes, rivers, streams). The purpose of the LT2 rule is to reduce illness linked with disease-causing microorganisms in drinking water, however it is important to note that these pathogens can be spread through means other than drinking water.

Terminology

Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Parts per million (ppm) and parts per billion (ppb) - One ppm can be equated to four teaspoons of salt in a standard 24-foot backyard pool. One ppb is like one teaspoon of salt in an Olympic-sized pool.

Maximum Contaminant Level (MCL) - The MCL is the highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology. MCLs are set at very stringent levels by the state and federal government.

System-Wide Results

Maximum Contaminant Level Goal (MCLG) - The MCLG is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Nephelometric Turbidity Unit (NTU) - A measure of clarity based on how much light is scattered by suspended matter in the water. The lower the NTU, the less cloudy the water.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) -Byproducts of drinking water disinfection.

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.

Operational Evaluation Level (OEL) - A measurement to help systems take action to reduce elevated disinfection byproducts before a violation occurs.

nd/na - Not detected/not applicable or available.

There were no Lead or Copper Violations in the Service Area Covered by this Report.

	Albee Twp	Birch Run Twp	Village of Birch Run	Blumfield/Reese	Bridgeport Twp	Buena Vista Twp	Carrollton Twp	Frankenlust Twp	James Twp	Kochville Twp	City of Saginaw	Saginaw Twp	Village of St Charles	Spaulding Twp	Swan Creek Twp	Taymouth Twp	Thomas Twp	Tittabawassee Twp	City of Zilwaukee
TTHM (ppb)	74	64	55	75	80	84	44	61	50	75	57	64	63	65	56	64	67	72	60
Low	74	33	26	39	39	27	22	26	26	51	24	35	38	26	29	41	10	36	29
High Violation?	74	90	92	100	97	88	54	84	87	76	63	62	83	91	94	82	89	100	74
Violation?	no	no	no	no	no	yes^	no	no	no	yes+	no	no	yes+	no	no	no	no	no	no
HAA5 (ppb)	35	33	27	39	33	28	30	25	24	38	26	35	26	31	29	31	33	41	29
Low	35	20	12	20	14	15	18	14	11	26	10	17	17	12	15	23	10	18	12
High	35	44	38	56	38	41	45	39	37	52	37	36	25	53	40	42	50	58	42
Violation?	no	no	no	no	no	no	no	no	no	no	no	no	yes+	no	no	no	no	no	no
LEAD (ppb)	2	1	2	5	1	2	3	4	2	3	10	4	4	2	1	2	1	2	2
Sites Above AL	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0
Violation?						Т	here	e wei	re no	viol	atior	ns for	· Lea	d					
COPPER (ppm)	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.1	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Sites Above AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Violation?	There were no violations for Copper																		

TTHM MCL=80 ppb MCLG=none **HAA5** MCL=60 ppb MCLG=none **Lead** AL=15 ppb MCLG=0 **Copper** AL=1.3 ppm MCLG=1.3 ppm **Likely sources:** TTHM and HAA5 are byproducts of drinking water disinfection. Lead and Copper occur due to the corrosion of household plumbing.

^ Due to a technical issue in the second quarter of 2016, Buena Vista Township did not meet local monitoring requirements for TTHM. This resulted in an MCL violation, but the issue has been corrected and there was no need to boil water. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. For more information, please call 989.754.6536 ext. 2326.

+ Tier 3 Public Notice: In the third quarter of 2016, Kochville Township did not collect the necessary TTHM samples within the specified timeframe. Likewise, the Village of St. Charles missed sampling for both TTHM and HAA5 in the second quarter. There was no emergency and no need to boil water. If you have questions, please contact your community water utility contacts listed on the last page.

Regulated Parameters (sampled in each individual community's distribution system)

Total Coliform Bacteria Total coliform bacteria and E. coli were NOT detected in the routine monitoring samples collected from each community's distribution system in 2016.

Stage 2 Disinfection Byproducts The results shown above for TTHM and HAA5 are the highest locational running annual averages calculated quarterly for each community. The range shows the single highest and lowest detections during 2016 compliance monitoring. To prevent MCL violations, the state also tracks the OEL. If the OEL exceeds the MCL, the community is required to submit a written report outlining corrective actions within 90 days.

Lead and Copper Communities in the Saginaw Region have historically remained well under the maximum level allowed for lead or copper in drinking water systems. Lead and copper are not naturally present in our water and the Saginaw Treatment Plant monitors to ensure that drinking water is non-corrosive. Because of this favorable track record, all communities in the Saginaw system participate in a triennial coordinated test. The figures above are from the 2016 coordinated test.

Lead and copper compliance is based on the 90th percentile, where nine out of ten samples must be below the AL within each individual water system. Of the 156 reportable samples for lead compliance in the regional service area, only four exceeded the AL. No sites exceeded the AL for copper.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Your water utility is responsible for providing high quality drinking water, but cannot control the variety of materials used in household plumbing components. If you are concerned about lead, you may wish to have your water tested.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800.426.4791 or www.epa.gov/safewater/lead as well as by entering "Lead in Drinking Water" at www.michigan.gov/deq.

Community-Specific Results

For More Information

Water Distributor Albee Township Birch Run Township Village of Birch Run Blumfield/Reese Bridgeport Township Buena Vista Township **Carrollton Township** Frankenlust Township James Township Kochville Township City of Saginaw Saginaw Township Village of St. Charles Spaulding Township Swan Creek Township Taymouth Township Thomas Township Tittabawassee Township City of Zilwaukee

To participate in decisions concerning your drinking water, please attend your local as well as City of Saginaw meetings. If you have questions about this report or would like extra copies, please call your local Water Utility Contact.

Meeting Schedule/Time/Location Second Tuesday, 8:00 pm, 10645 East Road Second Tuesday, 7:00 pm, 8411 Main Street Fourth Monday, 7:00 pm, 12060 Heath Street Third Monday, 7:00 pm, 12810 E. Washington, Reese First Tuesday, 6:00 pm, 6206 Dixie Highway Fourth Monday, 6:00 pm, 1160 S. Outer Drive Second/Last Monday, 5:30 pm, 1645 Mapleridge Road Varies, please call 989.684.3883, 3933 Patterson Road Second Monday, 7:30 pm, 6060 Swan Creek Road Third Monday, 7:00 pm, 3245 Kochville Road Mondays, twice monthly, call 989.759.1480 for details Second/Fourth Mondays, 7:00 pm, 4980 Shattuck Road Second Wednesday, 7:00 pm, 110 W. Spruce Street Third Tuesday, 6:00 pm, 5025 East Road Second Monday, 4:00 pm, 11415 Lakefield Road Second Wednesday, 7:00 pm, 4343 Birch Run Road First Monday, 7:00 pm, 8215 Shields Drive Second Tuesday, 7:30 pm, 145 S. Second Street Last Monday, 3:30 pm, 319 Tittabawassee Road

Water Utility Contact Mark Jebb, 989.770.4844 Brad Thomas, 989.624.9773 Terry Engelhardt, 989.624.9856 Tim Sheridan, 989.868.9940 Ruthann Evans, 989.777.0974 Charles Suchodolski, 989.754.6536 Mark Pilkington, 989.754.4611 x110 Michael Brown, 989.684.3883 Mark Jebb, 989.781.1353 Mike Comstock 989.792.7596 x 115 Paul Reinsch, 989.759.1640 Sonny Grunwell, 989.791.9870 Patrick Mishler, 989.865.8287 Don Ackerman, 989.777.2733 Mark Jebb, 989.865.6251 A.J. Nowak, 989.624.4159 x24 Rick Hopper, 989.781.0150 Ed Mahaney, 989.695.6517 Eric Mahan, 989.755.0931

About the Saginaw Water Treatment Plant

You receive your water from the Saginaw Water Treatment Plant, which is a not-for-profit department of the City of Saginaw, governed by Saginaw City Council. We encourage your interest in the decisions pertaining to your drinking water. Meetings are held on Mondays, twice monthly. For details or to register as a speaker, please contact the City Clerk's office at 989.759.1480.

Dennis Browning, Mayor Floyd Kloc, Mayor Pro Tem Michael Balls, Council Member Annie Boensch, Council Member Clint Bryant, Council Member John Humphreys, Council Member John Milne, Council Member Brenda Moore, Council Member Demond Tibbs, Council Member



Tim Morales, City Manager Kimberly Mason, Director of Water and Wastewater Treatment Services Phillip Karwat, PE, Director of Public Services Paul Reinsch, Superintendent of Water Treatment and Field Operations

Water Quality Questions: 989.759.1640 USEPA Safe Drinking Water Hotline: 800.426.4791 Electronic Water Quality Report: www.saginaw-mi.com/ccr.php



